

CLAIMS

1. A motor for generating vibration comprising;

a vibration generating mechanism having a rotating shaft attached with a weight,

a housing case for accommodating at least a part of the vibration generating mechanism,
and

a pair of power supply terminals protruding from the housing for electrically connecting the power supply terminal to a power supply land by making elastically in contact with the power supply land of a power source side circuit board to be mounted in a housing of a portable apparatus and for supplying power to the vibration generating mechanism,

wherein each of a bending point and an action point of a movable portion of the power supply terminal movable in the direction in which the power supply terminal contacts the power supply land is arranged in a plane that includes a center of gravity of vibrational motion of the motor for generating vibration and is almost perpendicular to a rotating axis of the weight.

2. A motor for generating vibration according to Claim 1,

wherein, as for a positional relationship between a center of gravity of vibrational motion of the motor for generating vibration and an action point of a movable portion of a power supply terminal arranged in a plane that includes the center of gravity of vibrational motion and is almost perpendicular to a rotating axis of a weight,

when the motor for generating vibration is built on a circuit board inside a housing of a portable apparatus,

the action point of the movable portion of the power supply terminal that is movable while in contact with a power supply land is arranged in a direction in which the action point approaches the center of gravity of vibrational motion.

3. A motor for generating vibration according to Claim 1 or 2,

wherein, as for a positional relationship between a center of gravity of vibrational motion of the motor for generating vibration and an action point of a movable portion of a power

supply terminal arranged in a plane that includes the center of gravity of vibrational motion and is almost perpendicular to a rotating axis of a weight,

when the motor for generating vibration is built on a circuit board inside a housing of a portable apparatus,

the action point of the movable portion of the power supply terminal that is movable while in contact with a power supply land is arranged in a condition that the action point is movable in a direction almost perpendicular to the power supply land or in an almost circumferential direction.

4. A motor for generating vibration according to Claims 1 through 3,

wherein, as for a positional relationship between a bending point and an action point of a power supply terminal provided along a plane that includes a center of gravity of vibrational motion of the motor for generating vibration and is almost perpendicular to a rotating axis of a weight,

when the motor for generating vibration is built on a circuit board inside a housing of a portable apparatus,

the action point of the movable portion of the power supply terminal is arranged so that the action point is closer than a bending point to a vertical line drawn from the center of gravity of vibrational motion onto the circuit board.

5. A motor for generating vibration according to Claims 1 through 4,

wherein, as for a relationship among a center of gravity of vibrational motion of the motor for generating vibration, a bending point and an action point of a movable portion of a power supply terminal arranged in a plane that includes the center of gravity of vibrational motion and is almost perpendicular to a rotating axis of a weight,

when the motor for generating vibration is built on a circuit board inside a housing of a portable apparatus,

the bending point and the action point of the movable portion of the power supply terminal are arranged along a circuit board surface within an angular range of approximately 45 degrees for one side or within approximately 90 degrees for both sides from a vertical line

drawn from the center of gravity of vibrational motion assuming the center of gravity as the vertex of a triangle.

6. A motor for generating vibration according to Claims 1 through 5,
wherein an ring-like contact portion is formed at a tip end of a movable portion of the power supply terminal, and
a contact portion with a power supply land is arranged at a part of an outer periphery of the ring-like contact portion.
7. A motor for generating vibration according to Claims 1 through 5,
wherein a ring-like contact portion is formed at a tip end of a movable portion of the power supply terminal, and
a multi-contact portion with a power supply land is arranged at a part of an outer periphery of the circular contact portion.
8. A motor for generating vibration according to Claim 6 or 7,
wherein an outer periphery of a circular contact portion at a tip end of a movable portion of the power supply terminal is arranged in a plane almost perpendicular to a rotating axis of a weight.
9. A motor for generating vibration according to Claims 1 through 8,
wherein the power supply terminal is manufactured by forming an elastic spring member made from a wire-rod.
10. A motor for generating vibration according to Claims 1 through 9, wherein at least a part of a terminal block holding the pair of power supply terminals is positioned at the center of an outer side of a housing case cylinder,
the terminal block has a shape of a plane, which is formed in parallel with a rotating axis of a weight,
the plane portion of the terminal block keeps the clearance between the housing case and the circuit board surface constant, and
when the motor for generating vibration is built on a circuit board inside a housing of a portable apparatus, the circuit board surface is directly in contact with the plane portion of the

terminal block in a face-to-face manner, and

at the same time the contact portion of the power supply terminal is electrically connected to the power supply land of the circuit board in almost the same plane as the plane portion of the terminal block.

11. A motor for generating vibration according to Claims 1 through 10,
wherein a part of the power supply terminal is held in a condition of winding around a winding core section provided to the terminal block.

12. A motor for generating vibration according to Claims 1 through 11,
comprising a holder for holding the motor for generating vibration in a housing of a portable apparatus,

wherein, when an aforementioned motor for generating vibration is built on a circuit board inside a housing of a portable apparatus,

a grounding plane portion on which a holder covering a housing case of the motor for generating vibration in contact with the circuit board surface is positioned at both ends of a rotating axis of a weight on a plane portion of a terminal block of the motor for generating vibration, and

the plane portion of the terminal block and the grounding plane portion of the holder are arranged in almost the same plane.

13. A motor for generating vibration according to Claims 1 through 12,
wherein the motor for generating vibration is mounted on a circuit board inside the housing of a portable apparatus, and

the power supply land of the circuit board is electrically connected to the power supply terminal of the motor for generating vibration in the condition that the power supply land is elastically in contact with the power supply terminal by an action for assembling the housing of an apparatus.